

Cold Spring Groundwater Study: Fact Sheet 3

The DNR completed the groundwater model of the Cold Spring area in December 2019. We built the model using information about streamflow, groundwater, geology, weather, and lakes. The model includes key information about the hydrologic system so that it can calculate how pumping groundwater affects flow in Cold Spring Creek.

How did the DNR use the groundwater model?

The DNR used the groundwater model to test 18 groundwater-use scenarios. The scenarios were chosen to show how pumping from different distances and at different rates affects flow in Cold Spring Creek. The scenarios are not intended to be implemented. Rather, the DNR chose the scenarios to provide useful information.

What did the DNR learn from the groundwater model?

We learned that:

- In 2018, groundwater pumping reduced base flow in the Creek by about 20 percent.
- Groundwater pumping within $\frac{1}{4}$ mile of the Creek has the most impact on base flow in the Creek.
- Groundwater pumping more than 2 miles from the Creek has very little impact on base flow in the Creek.
- If all wells pumped their permitted volumes, it would reduce base flow by about 23 percent.
- If pumping were shifted from the city's existing well field to a well field farther from the creek, there would be more base flow in the Creek.

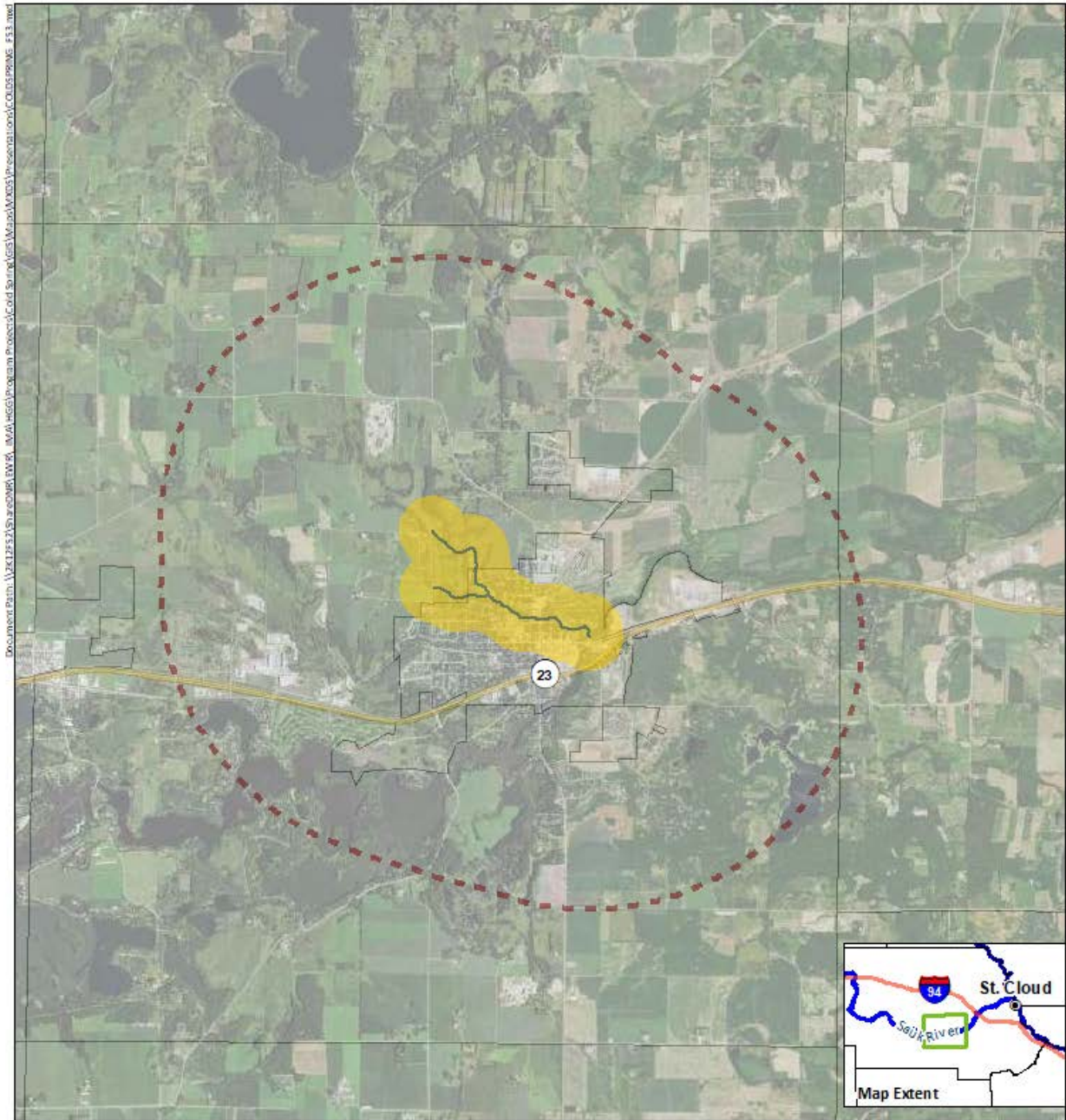
What do the model results mean?

The model results showed us that pumping groundwater at 2018 volumes or at permitted volumes reduces base flow by 20 percent or more. This reduction in base flow would negatively impact the Creek.

We also learned that pumping very close to the Creek strongly impacts flow in the Creek, but pumping farther from the Creek has much less impact. The model results show that it is possible for groundwater users to meet their needs and protect the ecosystem.

What happens next?

The DNR has been working with groundwater users who pump near the Creek to make progress toward sustainable use that supports local needs.



Legend




-  Cold Spring Creek
-  Quarter Mile from creek
-  Two Miles from creek

Figure 1. Cold Spring Area

Cold Spring Groundwater Study

